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#8

SEQUENCE LISTING

<110> Anderson, Marilyn, A., Lay, Fung T., Heath, Robyn, L.

<120> Plant-derived molecules and genetic sequences encoding same and uses therefor

<130> 18-01

<140> USSN 10/072,809

<141> 2002-02-08

<150> USSN 60/267,271

<151> 2001-02-08

<160> 61

<170> PatentIn version 3.0

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 Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
 1 5 10 15

 aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt 96
 Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
 20 25 30

 cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt 141
 His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
 35 40 45

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 <211> 47
 <212> PRT
 <213> Nicotiana alata

<400> 8
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 ctc ttt gtt gcc tat gag gtg caa gct 75
 Leu Phe Val Ala Tyr Glu Val Gln Ala
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 gaa gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat 96
 Glu Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp
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aac 99
Asn

<210> 12
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Asn

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Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
1 5 10 15

ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc 96
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30

aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct 144
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45

tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga 192
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
50 55 60

agg tgc cta tgt act aag cca tgt 216
Arg Cys Leu Cys Thr Lys Pro Cys
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Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30

Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45

Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
50 55 60

Arg Cys Leu Cys Thr Lys Pro Cys
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aaa cca cca tgc aga aaa gct tgt atc agt gag aaa ttt act gat ggt 96
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
20 25 30

cat tgt agc aaa atc ctc aga agg tgc cta tgt act aag cca tgt gtg 144
His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
35 40 45

ttt gat gag aag atg act aaa aca gga gct gaa att ttg gct gag gaa 192
Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu Glu
50 55 60

gca aaa act ttg gct gca gct ttg ctt gaa gaa gag ata atg gat aac 240
Ala Lys Thr Leu Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
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<210> 16
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<213> Nicotiana alata

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Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
20 25 30

His Cys Ser Lys Ile Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys Val
35 40 45

Phe Asp Glu Lys Met Thr Lys Thr Gly Ala Glu Ile Leu Ala Glu Glu
50 55 60

Ala Lys Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
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1 5 10 15

ctc ttt gtt gcc tat gag gtg caa gct aga gaa tgc aaa aca gaa agc 96
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30

aac aca ttt cct gga ata tgc att acc aaa cca cca tgc aga aaa gct 144
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45

tgt atc agt gag aaa ttt act gat ggt cat tgt agc aaa atc ctc aga 192
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
50 55 60

agg tgc cta tgt act aag cca tgt gtg ttt gat gag aag atg act aaa 240
Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Thr Lys
65 70 75 80

aca gga gct gaa att ttg gct gag gaa gca aaa act ttg gct gca gct 288
Thr Gly Ala Glu Ile Leu Ala Glu Glu Ala Lys Thr Leu Ala Ala Ala
85 90 95

ttg ctt gaa gaa gag ata atg gat aac taa ttagagatta gaagaaatta 338
Leu Leu Glu Glu Glu Ile Met Asp Asn
100 105

aggatgcagt atcacacata ataaagtttc taccttttctt aaaagtgtag ctaatgttgt 398

gttttaattg gcttttagta gccttttatt acacttttaa taagtgtggc acttcaatcc 458

tttgtgcaat cttgcactaa gtttatttgt gtacttttaa tgaaaatgac cttctatggt 518

ctttggttaa aaaaaaaaaa aaa 541

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<400> 18
Met Ala Arg Ser Leu Cys Phe Met Ala Phe Ala Ile Leu Ala Arg Met
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Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg
50 55 60
Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Thr Lys
65 70 75 80
Thr Gly Ala Glu Ile Leu Ala Glu Glu Ala Lys Thr Leu Ala Ala Ala
85 90 95
Leu Leu Glu Glu Glu Ile Met Asp Asn
100 105

<210> 19
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taagtgtggc acttcaatcc tttgtgcaat ctgacctaa gtttatttgt gtacttttaa 180
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<213> peptide

<400> 20
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Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Lys Thr Glu Ser
20 25 30
Asn Thr Phe Pro Gly Ile Cys Ile Thr Lys Pro Pro Cys Arg Lys Ala
35 40 45
Cys Ile Ser Glu Lys Phe Thr Asp Gly His Cys Ser Lys Leu Leu Arg
50 55 60
Arg Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Glu Lys Met Ile Lys
65 70 75 80
Thr Gly Ala Glu Thr Leu Val Glu Glu Ala Lys Thr Leu Ala Ala Ala
85 90 95

Leu Leu Glu Glu Glu Ile Met Asp Asn
100 105

<210> 21
<211> 105
<212> PRT
<213> peptide

<400> 21
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Leu Phe Val Thr Tyr Glu Val Glu Ala Gln Gln Ile Cys Lys Ala Pro
20 25 30

Ser Gln Thr Phe Pro Gly Leu Cys Phe Met Asp Ser Ser Cys Arg Lys
35 40 45

Tyr Cys Ile Lys Glu Lys Phe Thr Gly Gly His Cys Ser Lys Leu Gln
50 55 60

Arg Lys Cys Leu Cys Thr Lys Pro Cys Val Phe Asp Lys Ile Ser Ser
65 70 75 80

Glu Val Lys Ala Thr Leu Gly Glu Glu Ala Lys Thr Leu Ser Glu Val
85 90 95

Val Leu Glu Glu Glu Ile Met Met Glu
100 105

<210> 22
<211> 78
<212> PRT
<213> peptide

<400> 22
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Leu Val Thr Ala Thr Glu Met Gly Pro Met Thr Ile Ala Glu Ala Arg
20 25 30

Thr Cys Glu Ser Gln Ser His Arg Phe Lys Gly Pro Cys Ser Arg Asp
35 40 45

Ser Asn Cys Ala Thr Val Cys Leu Thr Glu Gly Phe Ser Gly Gly Arg
50 55 60

Cys Pro Trp Ile Pro Pro Arg Cys Phe Cys Thr Ser Pro Cys
65 70 75

<210> 23
<211> 78
<212> PRT
<213> peptide

<400> 23
Met Gly Arg Ser Ile Arg Leu Phe Ala Thr Phe Phe Leu Ile Ala Met
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Leu Phe Leu Ser Thr Glu Met Gly Pro Met Thr Ser Ala Glu Ala Arg
20 25 30
Thr Cys Glu Ser Gln Ser His Arg Phe His Gly Thr Cys Val Arg Glu
35 40 45
Ser Asn Cys Ala Ser Val Cys Gln Thr Glu Gly Phe Ile Gly Gly Asn
50 55 60
Cys Arg Ala Phe Arg Arg Arg Cys Phe Cys Thr Arg Asn Cys
65 70 75

<210> 24
<211> 77
<212> PRT
<213> peptide

<400> 24
Met Lys Leu Ser Met Arg Leu Ile Ser Ala Val Leu Ile Met Phe Met
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Ile Phe Val Ala Thr Gly Met Gly Pro Val Thr Val Glu Ala Arg Thr
20 25 30
Cys Glu Ser Gln Ser His Arg Phe Lys Gly Thr Cys Val Ser Ala Ser
35 40 45
Asn Cys Ala Asn Val Cys His Asn Glu Gly Phe Val Gly Gly Asn Cys
50 55 60
Arg Gly Phe Arg Arg Arg Cys Phe Cys Thr Arg His Cys
65 70 75

<210> 25
<211> 47
<212> PRT
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<400> 25
Arg Glu Cys Lys Thr Glu Ser Asn Thr Phe Pro Gly Ile Cys Ile Thr
1 5 10 15
Lys Pro Pro Cys Arg Lys Ala Cys Ile Ser Glu Lys Phe Thr Asp Gly
20 25 30
His Cys Ser Lys Leu Leu Arg Arg Cys Leu Cys Thr Lys Pro Cys
35 40 45

<210> 26
<211> 47
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<400> 26
 Gln Ile Cys Lys Ala Pro Ser Gln Thr Phe Pro Gly Leu Cys Phe Met
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 Asp Ser Ser Cys Arg Lys Tyr Cys Ile Lys Glu Lys Phe Thr Gly Gly
 20 25 30
 His Cys Ser Lys Leu Gln Arg Lys Cys Leu Cys Thr Lys Pro Cys
 35 40 45

<210> 27
 <211> 47
 <212> PRT
 <213> peptide

<400> 27
 Arg His Cys Glu Ser Leu Ser His Arg Phe Lys Gly Pro Cys Thr Arg
 1 5 10 15
 Asp Ser Asn Cys Ala Ser Val Cys Glu Thr Glu Arg Phe Ser Gly Gly
 20 25 30
 Asn Cys His Gly Phe Arg Arg Arg Cys Phe Cys Thr Lys Pro Cys
 35 40 45

<210> 28
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<400> 28
 Arg Val Cys Glu Ser Gln Ser His Gly Phe His Gly Leu Cys Asn Arg
 1 5 10 15
 Asp His Asn Cys Ala Leu Val Cys Arg Asn Glu Gly Phe Ser Gly Gly
 20 25 30
 Arg Cys Lys Gly Phe Arg Arg Arg Cys Phe Cys Thr Arg Ile Cys
 35 40 45

<210> 29
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 <212> PRT
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<400> 29
 Arg Thr Cys Glu Ser Gln Ser His Arg Phe His Gly Thr Cys Val Arg
 1 5 10 15
 Glu Ser Asn Cys Ala Ser Val Cys Gln Thr Glu Gly Phe Ile Gly Gly
 20 25 30
 Asn Cys Arg Ala Phe Arg Arg Arg Cys Phe Cys Thr Arg Asn Cys
 35 40 45

<210> 30
<211> 47
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<400> 30
Arg Ile Cys Arg Arg Arg Ser Ala Gly Phe Lys Gly Pro Cys Val Ser
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Asn Lys Asn Cys Ala Gln Val Cys Met Gln Glu Trp Gly Glu Gly Gly
20 25 30
Asn Cys Asp Gly Pro Leu Arg Arg Cys Lys Cys Met Arg Arg Cys
35 40 45

<210> 31
<211> 51
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Gln Lys Leu Cys Gln Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly
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Asn Asn Asn Ala Cys Arg Asn Gln Cys Ile Asn Leu Glu Lys Ala Arg
20 25 30
His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr
35 40 45
Phe Pro Cys
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<210> 32
<211> 20
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<400> 32
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1 5 10 15
Asp Ser Asn Cys
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<210> 33
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<400> 33
Gln Lys Leu Cys Glu Arg Pro Ser Gly Thr Trp Ser Gly Val Cys Gly
1 5 10 15
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 35 40 45

Phe Pro Cys
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<210> 34
 <211> 51
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<400> 34
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His Gly Ser Cys Asn Tyr Val Phe Pro Ala His Lys Cys Ile Cys Tyr
 35 40 45

Phe Pro Cys
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 35 40 45

Phe Pro Cys
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 <211> 52
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<400> 36
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Arg Asn Asn Asn Ala Cys Arg Asn Phe Cys Ile Lys Leu Glu Lys Ser
 20 25 30

Arg His Gly Ser Cys Asn Ile Pro Phe Pro Ser Asn Lys Cys Ile Cys
 35 40 45

Tyr Phe Pro Cys
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Asn Cys Asp Gly Pro Phe Arg Arg Cys Lys Cys Ile Arg Gln Cys
35 40 45

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Lys Val Cys Arg Gln Arg Ser Ala Gly Phe Lys Gly Pro Cys Val Ser
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Asp Lys Asn Cys Ala Gln Val Cys Leu Gln Glu Gly Trp Gly Gly Gly
20 25 30

Asn Cys Asp Gly Pro Phe Arg Arg Cys Lys Cys Ile Arg Gln Cys
35 40 45

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Lys Thr Cys Glu Asn Leu Val Asp Thr Tyr Arg Gly Pro Cys Phe Thr
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20 25 30

Gly Arg Cys Arg Asp Asp Val Arg Cys Trp Cys Thr Arg Asn Cys
35 40 45

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<211> 48
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<400> 40
Arg Val Cys Met Gly Lys Ser Ala Gly Phe Lys Gly Leu Cys Met Arg
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Asp Gln Asn Cys Ala Gln Val Cys Leu Gln Glu Gly Trp Gly Gly Gly
 20 25 30

Asn Cys Asp Gly Val Met Arg Gln Cys Lys Cys Ile Arg Gln Cys Trp
 35 40 45

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 <211> 48
 <212> PRT
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<400> 41
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Asp His Asn Cys Ala Gln Val Cys Leu Gln Glu Gly Trp Gly Gly Gly
 20 25 30

Asn Cys Asp Gly Val Ile Arg Gln Cys Lys Cys Ile Arg Gln Cys Trp
 35 40 45

<210> 42
 <211> 20
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<400> 42
 Glu Val Cys Glu Lys Ala Ser Lys Thr Trp Ser Gly Asn Cys Gly Asn
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Thr Gly His Cys
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<210> 43
 <211> 47
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<400> 43
 Arg Val Cys Met Lys Gly Ser Gln His His Ser Phe Pro Cys Ile Ser
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Asp Arg Leu Cys Ser Asn Glu Cys Val Lys Glu Glu Gly Gly Trp Thr
 20 25 30

Ala Gly Tyr Cys His Leu Arg Tyr Cys Arg Cys Gln Lys Ala Cys
 35 40 45

<210> 44
 <211> 45
 <212> PRT
 <213> peptide

<400> 44
 Asn Thr Cys Glu Asn Leu Ala Gly Ser Tyr Lys Gly Val Cys Phe Gly
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Gly Cys Asp Arg His Cys Arg Thr Gln Glu Gly Ala Ile Ser Gly Arg
 20 25 30

Cys Arg Asp Asp Phe Arg Cys Trp Cys Thr Lys Asn Cys
 35 40 45

<210> 45
 <211> 50
 <212> PRT
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<400> 45
 Leu Cys Asn Glu Arg Pro Ser Gln Thr Trp Ser Gly Asn Cys Gly Asn
 1 5 10 15

Thr Ala His Cys Asp Lys Gln Cys Gln Asp Trp Glu Lys Ala Ser His
 20 25 30

Gly Ala Cys His Lys Arg Glu Asn His Trp Lys Cys Phe Cys Tyr Phe
 35 40 45

Asn Cys
 50

<210> 46
 <211> 51
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 <213> peptide

<400> 46
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Ser Ser Lys Cys Ser Gln Gln Cys Lys Asp Arg Glu His Phe Ala Tyr
 20 25 30

Gly Gly Ala Cys His Tyr Gln Phe Pro Ser Val Lys Cys Phe Cys Lys
 35 40 45

Arg Gln Cys
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 <211> 50
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 <213> peptide

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 1 5 10 15

Thr Gly His Cys Asp Asn Gln Cys Lys Ser Trp Glu Gly Ala Ala His
 20 25 30

Gly Ala Cys His Val Arg Asn Gly Lys His Met Cys Phe Cys Tyr Phe
 35 40 45

Asn Cys
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<400> 48
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1 5 10 15

Asn Ala Ser Cys Asp Asp His Cys Lys Asn Lys Ala His Leu Ile Ser
20 25 30

Gly Thr Cys His Asp Trp Lys Cys Phe Cys Thr Gln Asn Cys
35 40 45

<210> 49
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<213> peptide

<400> 49
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1 5 10 15

Thr Gly His Cys Asp Thr Gln Cys Arg Asn Trp Glu Ser Ala Lys His
20 25 30

Gly Ala Cys His Lys Arg Gly Asn Trp Lys Cys Phe Cys Tyr Phe Asn
35 40 45

Cys

<210> 50
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<212> PRT
<213> peptide

<400> 50
Leu Phe Val Ala Tyr Glu Val Gln Ala Arg Glu Cys Ala Arg Glu Ile
1 5 10 15

Phe Thr Gly Leu Cys Ile Thr Asn Pro Gln Cys Arg Lys Ala Cys Ile
20 25 30

Lys Glu Lys Phe Thr Asp Gly His Cys Ser Lys Ile Leu Arg Arg Cys
35 40 45

Leu Cys Thr Lys Pro Cys Thr Gly Ala Glu Thr Leu Ala Glu Glu Ala
50 55 60

Thr Thr Leu Ala Ala Ala Leu Leu Glu Glu Glu Ile Met Asp Asn
65 70 75

<210> 51
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<400> 51

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Asn	Thr	Phe	Pro	Gly	Ile	Cys	Ile	Thr	Lys	Pro	Pro	Cys	Arg	Lys	Ala
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Cys	Ile	Lys	Glu	Lys	Phe	Thr	Asp	Gly	His	Cys	Ser	Lys	Ile	Leu	Arg
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Arg	Cys	Leu	Cys	Thr	Lys	Pro	Cys	Val	Phe	Asp	Glu	Lys	Met	Ile	Lys
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<400> 52

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Ser	Asn	Thr	Phe	Pro	Gly	Leu	Cys	Ile	Thr	Lys	Pro	Pro	Cys	Arg	Lys
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Ala	Cys	Leu	Ser	Glu	Lys	Phe	Thr	Asp	Gly	Lys	Cys	Ser	Lys	Ile	Leu
	50					55					60				
Arg	Arg	Cys	Ile	Cys	Tyr	Lys	Pro	Cys	Val	Phe	Asp	Gly	Lys	Met	Ile
65					70					75				80	
Gln	Thr	Gly	Ala	Glu	Asn	Leu	Ala	Glu	Glu	Ala	Glu	Thr	Leu	Ala	Ala
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gca ggc acg aag ggt tgt aag tac ttc agt gat gat gga act ttt gtt Ala Gly Thr Lys Lys Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val 35 40 45	144
tgt gaa gga gag tct gat cct aga aat cca aag gct tgt acc tta aac Cys Glu Gly Glu Ser Asp Pro Arg Asn Pro Lys Ala Cys Thr Leu Asn 50 55 60	192
tgt gat cca aga att gcc tat gga gtt tgc cgg cgt tca gaa gaa aag Cys Asp Pro Arg Ile Ala Tyr Gly Val Cys Pro Arg Ser Glu Glu Lys 65 70 75 80	240
aag aat gat cgg ata tgc acc aac tgt tgc gca ggc acg aag ggt tgt Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Thr Lys Gly Cys 85 90 95	288
aag tac ttc agt gat gat gga act ttt gtt tgt gaa gga gag tct gat Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp 100 105 110	336
cct aga aat cca aag gct tgt cct cgg aat tgc gat cca aga att gcc Pro Arg Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Pro Arg Ile Ala 115 120 125	384
tat ggg att tgc cca ctt gca gaa gaa aag aag aat gat cgg ata tgc Tyr Gly Ile Cys Pro Leu Ala Glu Glu Lys Lys Asn Asp Arg Ile Cys 130 135 140	432
acc aac tgt tgc gca ggc aaa aag ggt tgt aag tac ttt agt gat gat Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp 145 150 155 160	480
gga act ttt gtt tgt gaa gga gag tct gat cct aaa aat cca aag gcc Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala 165 170 175	528
tgt cct cgg aat tgt gat gga aga att gcc tat ggg att tgc cca ctt Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu 180 185 190	576
tca gaa gaa aag aag aat gat cgg ata tgc acc aac tgc tgc gca ggc Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly 195 200 205	624
aaa aag ggt tgt aag tac ttt agt gat gat gga act ttt gtt tgt gaa Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu 210 215 220	672
gga gag tct gat cct aaa aat cca aag gct tgt cct cgg aat tgt gat Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp 225 230 235 240	720

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Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn	
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gat cgg ata tgc aca aac tgt tgc gca ggc aaa aag ggc tgt aag tac	816
Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr	
260 265 270	
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Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Arg	
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Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly	
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att tgc cca ctt tca gaa gaa aag aag aat gat cgg ata tgc acc aat	960
Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn	
305 310 315 320	
tgt tgc gca ggc aag aag ggc tgt aag tac ttt agt gat gat gga act	1008
Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr	
325 330 335	
ttt att tgt gaa gga gaa tct gaa tat gcc agc aaa gtg gat gaa tat	1056
Phe Ile Cys Glu Gly Glu Ser Glu Tyr Ala Ser Lys Val Asp Glu Tyr	
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gtt ggt gaa gtg gag aat gat ctc cag aag tct aag gtt gct gtt tcc	1104
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35 40 45	
Cys Glu Gly Glu Ser Asp Pro Arg Asn Pro Lys Ala Cys Thr Leu Asn	
50 55 60	
Cys Asp Pro Arg Ile Ala Tyr Gly Val Cys Pro Arg Ser Glu Glu Lys	
65 70 75 80	

Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Thr Lys Gly Cys
85 90 95

Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp
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Pro Arg Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Pro Arg Ile Ala
115 120 125

Tyr Gly Ile Cys Pro Leu Ala Glu Glu Lys Lys Asn Asp Arg Ile Cys
130 135 140

Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp
145 150 155 160

Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala
165 170 175

Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu
180 185 190

Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly
195 200 205

Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr Phe Val Cys Glu
210 215 220

Gly Glu Ser Asp Pro Lys Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp
225 230 235 240

Gly Arg Ile Ala Tyr Gly Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn
245 250 255

Asp Arg Ile Cys Thr Asn Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr
260 265 270

Phe Ser Asp Asp Gly Thr Phe Val Cys Glu Gly Glu Ser Asp Pro Arg
275 280 285

Asn Pro Lys Ala Cys Pro Arg Asn Cys Asp Gly Arg Ile Ala Tyr Gly
290 295 300

Ile Cys Pro Leu Ser Glu Glu Lys Lys Asn Asp Arg Ile Cys Thr Asn
 305 310 315 320

Cys Cys Ala Gly Lys Lys Gly Cys Lys Tyr Phe Ser Asp Asp Gly Thr
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20 25 30
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100     105     110

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